THE NA-DENE LANGUAGES, A PRELIMINARY REPORT[1]

By E. SAPIR

THE problem attacked in this paper is that of the genetic relationship of Athabaskan, Haida, and Tlingit. Important morphological, to a less extent also lexical, resemblances between Haida and Tlingit have long been pointed out by Boas and Swanton, resemblances which have led them to assume, though rather hesitatingly, genetic relationship between these languages. Boas has also somewhat vaguely hinted at fundamental resemblances in structure between Athabaskan and Haida-Tlingit, but no concrete evidence has been given on this point. A full presentation of the comparative lexical, phonological, and morphological evidence that serves to show, beyond all reasonable doubt, that Athabaskan, Haida, and Tlingit are indeed but divergent representatives of a common prototype is given in an extensive paper on "The Na-dene Languages" now in course of preparation as a memoir of the Anthropological Series of the Geological Survey of Canada. The present sketch, prepared at the request of Dr P. E. Goddard, is merely a rapid abstract of some of the leading points involved. I wish expressly to emphasize the fact that it does not present all the evidence at my disposal. While, however, it does not constitute the complete demonstration of my thesis, I believe that enough is here given to remove this thesis beyond the realm of the merely probable. The term "Na-dene," which has been chosen to designate the hypothetical prototype of Athabaskan, Haida, and Tlingit, will be explained in the latter part of the paper.

1. MORPHOLOGICAL FEATURES

Stem and Word Form.—The most typical and doubtless historically primary type of stem form found in the Na-dene languages is the monosyllabic stem consisting of consonant plus vowel; in

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[1] Read in substance before the Anthropological Association at Philadelphia.

Haida (H.) the consonant may be replaced by a cluster of two consonants which, in cognate words, appears contracted to a single consonant in Athabaskan (Ath.) and Tlingit (Tl.). Examples are: Ath. *-tsi¹ "daughter," *tʻo "water," *tɬʻo "grass," *-kʻe "foot," *-ne "to speak," *-ya "to stand (plur. subj.)," *-'a "to find," *-ɣa "for," *-na "around," *na- "again;" H. tcʔuˑ "cedar," qʔa "harpoon," stɬa "foot," ɫga "rock," tʻa "to eat," qʔa "to sleep," ẋa "to follow," sa "above," gu "at," qʔo- "by means of the teeth;" Tl. tʻa "stone," nu "fort," ẋa "enemy," ha "to dig," qʻa "to say," ci "to hunt for," tɬa "behind," kʻa "on," djʊ- "quickly." Many, perhaps all, elements consisting of a single consonant (or cluster of two consonants) are phonetically reduced owing to the loss of a vowel; e.g., Ath. *-n, *-ŋ "person" < *-ne; H. stɬ- "with the fingers" < stɬɬa "hand;" Tl. t "to" < dɛ.

In all Na-dene languages, however, a large number of stems is found consisting of consonant plus vowel plus consonant; e.g., Ath. *-tslĕn "bone," *-tɬas "to cut;" H. kʻun "point," sgoɫ "to hide;" Tl. dʊs "moon," tsiˑn "to be strong." In a very large number of cases there is clear internal evidence to show that the final consonant is an old suffixed element whose original meaning has doubtless generally been lost. Examples of such "petrified" suffixes are: Kato ɫɛts "clay," Navaho ɫɛʻc "dirt, ground," cf. Navaho ɫɛʻ- in compounds; Anvik tʻal "bed" (< Ath. *tʻel), Hupa -tʻɛtc "several lie," cf. Hupa -tʻɛ "to lie (sing.)," past definite -tʻɛn; H. (Masset) s'aiɫ "to weep," cf. s'ai-ga; H. ẋal- "by means of fire acting from without," cf. ẋai "sunshine;" Tl. tʻiˑn "to see," tʻiˑsɫ "to look for." While a considerable number of such stem finals correspond in Athabaskan and Haida or Tlingit (e.g. Ath. *-del "several go," H. dal "many persons go by land;" Ath. *-kɬan "to burn," Tl. qʔaˑn "fire"), numerous cases are found of stems that cor-

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¹ Forms given as Ath. are reconstructed on the basis of the actual forms found in various Athabaskan dialects. The general methodology of linguistic reconstruction and the sounds reconstructed for Athabaskan specifically are dealt with in the longer paper above referred to. The phonetic system employed in this paper is the one worked out by the Phonetic Committee of the American Anthropological Association; this report will be published in the near future.

* Indicates reconstructed forms.

respond according to regular phonetic law except for the final consonant; sometimes two of the three Na-dene languages agree as against the other; often the simple vocalic stem is found in one or two, but extended by a final consonant in the other. Examples of these cases are: H. *t'a·t* "year," Tl. *t'a·k* "year;" Chipewyan *θlal* "moss," Louch. *tclek*, Tl. *slatc* (Chip. *θla-* and Louch. *tcle-* point to Ath. **tsla-*, which points, with Tl. *sla-*, to Na-dene **tsla-*); Ath. **-ɫad* "end," H. *tlan* "end;" Ath. **-γel* "night passes," H. *ga·l* "night," Tl. *get* "to get dark;" Ath. **-ca*, **-cal* "to catch with a hook," H. *djɪl* "bait," Tl. *cat* "to seize;" Ath. **x̣es* "mountain," Tl. *ca* "mountain;" Ath. **-t'an* "to eat," H. *t'a* "to eat;" Ath. **-tlo* "to shoot," Tl. *tluk* "to shoot." Examples of this sort make it fairly obvious that many of the stems with final consonants that are yielded by a purely descriptive analysis are ultimately reducible to vocalic stems followed by what was originally a suffixed element. That all Na-dene stems with final consonants are of such origin cannot be demonstrated, but it does not seem at all improbable. The characteristic Na-dene stem may thus be symbolized by cv, of which c and cv-c are further developments.

Reduplication is a grammatical process that is conspicuous in Na-dene by its absence. It is found neither as a word-forming nor purely grammatical device. The only possible widespread Athabaskan exception that I have been able to find is the demonstrative stem *didi* "this," alongside of unreduplicated *di*. With this it is interesting to compare the probably reduplicated Haida interrogative stem *gu·gu-s* "what?" A negative feature of this sort is not in itself very indicative, but gains in weight when the Na-dene languages are contrasted with the Tsimshian, Kwakiutl-Nootka, and Salish languages to the south, in all of which reduplication plays an extremely important part.

The typical Na-dene word is built up of a number of monosyllabic elements (in most cases of form cv), one of which is the main stem, about which cluster a number of subsidiary etymological and grammatical elements that may be termed prefixes and suffixes. The various elements of a word, aside from certain ones that are perhaps best considered as proclitic and enclitic particles, make up a

coherent enough morphological unit, but are far from welding to-
gether in a manner suggestive of such form units as we are accus-
tomed to in Indo-germanic or are found also in many American Indian
languages (e. g., Kwakiutl, Eskimo, Yana, Southern Paiute). Most
of the elements preserve a considerable share of individuality, while
many can, indeed, be shown to be identical in origin with or special-
ized forms of independent stems. Thus, an Athabaskan word like
Kato *t'aya'o·naη* "let them drink" readily falls apart into four
perfectly distinct elements: the main stem -*naη* "to drink"
and three subsidiary elements that may be described as prefixes,
but which are far from fusing either among themselves or with this
stem into a close morphological unit; the prefixes are *t'a*-, an
element having reference to water (cf. independent forms Kato
t'o· "water," Montagnais[1] *t'a* "billow'"), a demonstrative element
ya'- indicating the plurality of the implied (but not definitely ex-
pressed) third personal subject of the verb, and *o·*-, a hortatory or
"future imperative" modal element: "water-they-shall-drink."
The "word" *t'aya'o·naη* feels decidedly like an old "sentence" of
monosyllabic constituents, *t'a ya' o· naη*, the first three elements
of which have lost their absolute independence and all four of
which have settled down to a rigidly prescribed order relatively to
each other. This same type of sentence-word (we may either
think of it as very closely knit sentence or, as we are more accustom-
ed to do, as relatively loosely knit word composed of easily analyzed
elements) can be abundantly illustrated also in Haida and Tlingit.
A Haida example is *iltlalgu·ldayaη* "(she) had put (it) (on her son)
as a blanket," consisting of a primary stem -*lgu·l*- "to go around,
to be wrapped about," an instrumental prefix *il*- denoting activity
with the hands (identical with the verb stem *il* "to touch"), a
classifying nominal prefix *tla*- which defines the object of the verb
as belonging to the class of flexible things thought of as crossing or
coiled (cf. *tla-da* "to wear;" an original Haida stem **tla* "blanket"

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[1] Another name for Chipewyan. I use "Montagnais" to indicate that I am
quoting from Petitot, "Chipewyan" from Goddard. All other Athabaskan forms
are quoted from Goddard and The Franciscan Fathers; all Haida and Tlingit forms,
from Swanton.

becomes very probable on reference to Ath. *t!e "blanket"), a causative suffix or auxiliary verb stem -da "to cause, to have as," and two temporal-modal elements, a perfective -y- (or -i-) and a suffix -aη indicating that the statement is not made on one's own authority: hand-blanket-be wrapped about–cause-d–as experienced by others.   Finally, a typical Tlingit example is afforded by q!a-o-dɩ-sa "(he) blew (upon the raft)." . As in the Athabaskan example given above, the main stem, sa "to blow," comes at the end of the word; it is preceded by three elements, an instrumental prefix q!a- "with the mouth" (identical with the noun stem q!a "mouth"), a modal element o- whose exact significance is unknown (it seems to be found only in active past temporal forms with third personal subject), and another modal or "aspect" suffix dɩ- of apparently inceptive or momentaneous force: mouth—in past time (?)—momentaneously—blow.

One of the incidental consequences of this type of structure is that, while the analysis of the word into its parts is in most cases easily undertaken, a just idea of the actual value or content of the word as a whole cannot be obtained by merely summing the values of the analyzed elements.   There is, equally in Athabaskan, Haida, and Tlingit, a great deal of idiomatic usage involved; in many cases all we can say is that it is customary for a certain perfectly definite idea to be expressed by a stem of fairly wide range of significance preceded by such and such not always evidently applicable prefixed elements.   Thus, the purely etymological analysis of the Hupa do· ma(k)-k!ai na-sɩ-η-'a "not-it-after over surface of ground-continuously-thou-have in possession" conveys as good as no notion of the actually well determined idea conveyed: "thou didst not want to (go home)."   Similarly, the Haida verb k'wa-ɩgi·-sta-sga- "in a stream-large cylindrical objects-remove from (a place)-toward an open place" really means "(olachens) run in a stream toward the sea."

Noun and Verb.—The relation between noun and verb is quite parallel in all three languages.   While verbal and substantival forms are throughout clearly kept apart (verb forms may be substantivized in various ways), the radical element of a word may often

be indifferently used as predicating or denominating stem. Thus, the Haida stem *na* indicates both "house" and "to dwell," *go·t* is used either as a noun meaning "buttocks" or an adjectival verb "to be last." In Tlingit this elasticity of usage is apparently less marked, though examples occur (e. g., *sa* "voice, name; to name, call;" *cɩ* "song; to sing"). Denominative verbs of this sort are particularly common in Athabaskan, e.g., Kato *k!aη'* "withes," *-k!aη'* "to twist;" Chipewyan *xaɬ* "club," *-xaɬ* "to use a club;" Hupa *ɩ̷ɬo* "grass," *-ɩ̷ɬo* "to make baskets;" Chipewyan *t'an* "ice," Kato *-t'aη* "to be cold;" Navaho *si·l* "steam," Kato *-si·l* "to steam." Under these circumstances it is perfectly natural that stems which are found used only as nouns in one of the Na-dene languages have become specialized as verbs in another. Examples are: H. *xao* "liquid," Ath. *-k'a* "liquid has position;" Tl. *q!a·n* "fire," Ath. *-k!an* "to build a fire, to burn;" Ath. *tc'eɬ* "steam," H. *sgal* "to steam;" H. *das* "live coals," Ath. *-das* "to burn, to singe;" Ath. *ts!ai*, *ts!a·* "dish," Tl. *s!ɩq!* "dish," H. *sq!ao* "to put in a dish."

A peculiarity of many Na-dene verb stems is that they are limited in their range to a particular class or number of objects. The simplest type of these is formed by verbs applying specifically to a singular, dual, or plural subject or object; e.g., Tl. *gu* "to go (one person)," *at* "to go (plur.);" H. *q'a* "to go (one person)," *dal* "to go (plur.);" *t'ia* "to kill one person," *ɩ̷ɬ!da* "to kill several;" Ath. *-ya* "one person goes," *-deɬ* "several go;" Hupa *-ye'n* "to stand (sing.)," *-ya* (plur.); *-'a* "one object is in position," *-'eɬ'* "several objects are in position." Still more characteristic are distinctions based on the shape of the object affected; e.g., Tl. *t'an* "to carry a long thing," *t'ɩ* "to carry a round thing;" Hupa *-t'an* "to handle or move a long object," *-k'os* "to handle or move anything that is flat and flexible;" Navaho *-'ec* "to lead (by a rope) a pair of animals," *-los* "to lead (by a rope) a single animal;" *-ɩ̷ɬe'* "to act upon an animate object," *-djoɬ* "to act upon such objects as hay, wool, or hair." In Haida such verbs do not seem to be found, but it is interesting psychologically to observe that corresponding classifications are here expressed by another means,

namely by the use of a long series of classifying nominal prefixes; e.g., *tclıs-* "cubic objects, such as boxes, " *sqla-* "long objects, like sticks and paddles," *ga-* "flat objects."

Verb Structure.—In all Na-dene languages the verb consists of a series of elements, which may be grouped into certain classes that have fixed position in the complex relatively to each other; the verb stem gravitates towards the end of the complex, particularly in Athabaskan and Tlingit. The typical Athabaskan verb may be analyzed as consisting of: adverbial prefix (including original noun stems,[1] local postpositions,[2] petrified demonstrative stems of chiefly objective reference,[3] and certain other elements which do not occur in other connections[4]) + objective pronominal prefix + demonstrative element referring to subject of verb, + "first modal" element + "second modal" element[5] + pronominal subject + "third modal" element[6] + verb stem + temporal-modal suffix + syntactic suffix (these are best considered as enclitic particles). Any of these elements but the stem may, in a particular form, be missing; two or more of the same general type may be exemplified in a single form. The order of elements as given above varies slightly for different dialects.

Quite similar in its general features to the structure of Athabaskan verb forms is that of corresponding forms in Tlingit. The analysis may be given as: pronominal object (best considered as proclitic to verb form) + nominal prefix of instrumental signifi-

[1] E. g., Hupa *tʻa-* "water," *sa'-* "mouth."

[2] E. g., Hupa *ye-* "into," *wa-* "to," *ꭓa-* "after."

[3] E. g., Hupa *a-* used as indefinite object with verbs of saying and doing, *ꭓa-* "same as before."

[4] E. g., Hupa *da-* "resting on," *noʻ-* "coming to rest," *na'-* denoting indefinite movement over surface, *na-* "again." At least some of these may be independent verb or other stems in origin. With *da-* cf. Ath. verb **-da* "to sit (sing. subject)"; *na-* may be identical with **na-* "two" (found, alongside of absolute **nak'e*, in, e. g., Hupa *na-dıŋ* "twice," *na-nın* "two men").

[5] These two sets of "modal" elements are not easy to define. They are best considered as indicating certain "*aspects*," i. e., as defining range of activity with reference to such notions as inception, continuation, distribution, cessation, and indefiniteness of object.

[6] These "modal" elements also are difficult to define and, like "first" and "second modal" elements, are largely bound up in usage with idiomatic factors. Their primary significance is to define *voice*, i. e., such notions as transitive, intransitive, and passive.

cance[1] + "first modal" prefix[1] + pronominal subject + "second modal" prefix + "third modal" prefix[3] + verb stem + quasi-temporal suffix + syntactic suffix.

Differing more widely from the Athabaskan pattern of verb structure is that of Haida. In Haida the pronominal subject and object are not as closely welded into the verbal framework as in Athabaskan and Tlingit and are best considered as independent elements of speech. However, as they occupy definitely determined positions immediately before the verb form proper, their structural difference from the corresponding elements of Athabaskan and Tlingit is more apparent than real. There is involved here merely a difference of degree of coalescence of originally distinct elements. The Haida verbal scheme may be represented as follows: pronominal object + pronominal subject + instrumental prefix (most of which are in origin noun and verb stems capable of being used independently) + classifying nominal prefix (several of which, perhaps all, are old noun stems) + prefixed adverbial element[4] + main verb stem + auxiliary verb stem (doubtless independent verb stems in origin which have become specialized as quasi-suffixes) + adverbial element (in origin independent noun, verb, adjective, or adverb stems)[5] + locative suffix + temporal-modal suffix.

This analysis of the Haida verb is not complete. It should

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[1] E. g., q!a- "mouth," lu- "nose, point."

[2] These elements do not form a well-defined class. They embrace such notions as causation, aspect, voice, tense, and indefiniteness of subject. They correspond, in Athabaskan, partly to certain adverbial prefixes, partly perhaps to "first modal" elements.

[3] These two sets of "modal" prefixes seem primarily to define various aspects (perfective, progressive, completive, inceptive, repetitive, momentaneous, transitional). They correspond to Athabaskan "first modal" and more particularly to "second modal" elements. As far as known, Athabaskan "third modal" elements find no counterpart in Tlingit.

[4] These elements, of which Swanton lists four, are termed by him "stems in initial position." It does not seem to me that there is any real necessity for the setting up of this class. Two of the elements are best regarded as nominal classifiers, one as an instrumental prefix, the other as a verb stem regularly compounded with other stems (see below).

[5] Swanton classifies these into three groups of "stems in terminal position," but this sub-classification, even if justified, is of no particular consequence here.

be observed, first of all, that the order of elements fluctuates in accordance with their logical relation to each other; thus, locative suffixes directly follow the main stem and are followed by auxiliary verb stems, if the locative element does not logically apply to the latter (e. g., *q'a-dl-da* "to take aboard," literally "to go-into canoe-cause"). Secondly, two or more independent verb stems may combine into a compound verb which is held together by the preposed pronoun (or pronouns) and the suffixed temporal-modal suffix (or suffixes) at the end of the complex. Each member of the compound may be itself attended by derivative prefixes or suffixes (including even certain temporal-modal elements, like continuative *-gaη-*). If we assume, as internal Haida evidence makes more than probable, that all auxiliary verb stems and suffixed adverbial elements are nothing but compounded originally independent stems, we may reduce the above analysis of verb forms to: pronominal object + pronominal subject + I. + II. + ⋯ + temporal-modal element, in which I., II., ⋯ stand for complexes of type: instrumental prefix + classifying nominal prefix + verb stem + locative suffix + continuative suffix).

Naturally, in any given verb form only a comparatively small number of theoretically possible positions are filled. I. generally contains the predominant stem of the whole verb form. Haida verb composition in its present form is doubtless largely a specialized development, though probably based on Na-dene processes. For this reason the typical Haida verb form in its older form must be defined, eliminating II., . . . , as: pronominal object + pronominal subject + instrumental prefix + classifying nominal prefix + verb stem + locative suffix + temporal-modal element. This scheme, despite its peculiar features, more nearly resembles the Athabaskan and Tlingit schemes than the one first given.[1]

Comparing the three verbal analyses given, we find that the Na-dene languages have several important traits of verb morphology in common. These are:

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[1] I do not, of course, mean to imply that all instrumental and classifying nominal prefixes are older, as verbal elements, than all "stems of terminal position." Analogy always operates to feed a type already in existence.

1. Noun stems are included as prefixes in the verb complex. They are partly of instrumental (or local) significance, partly, more particularly in Haida, general classifiers of subject or object.

2. Both pronominal subject and object elements regularly precede the verb stem. Of these, the object comes first in the compplex. In Haida the degree of coalescence of pronominal elements with the verb complex is much less than in Athabaskan and Tlingit. In these languages the subjective pronominal element is an integral part of the verb-form, being often separated from the objective element by an adverbial prefix.

3. Local affixes are found in both Haida and Athabaskan, though they are suffixed in the former, prefixed in the latter. At least some of the Athabaskan local prefixes are postpositions in origin; these, as regards their position after pronominal objects, offer striking analogies with corresponding elements in Haida and Tlingit, as we shall see later.

4. Athabaskan and Tlingit possess a large number of prefixed "modal" elements, which define adverbial notions, to a less extent temporal ideas, but primarily aspects. They are divisible into several position-classes, according to whether they precede or follow pronominal object and subject. These elements are in some respects the most characteristic of Na-dene morphology, though their presence is hardly traceable in Haida.

5. The verb stem is a generally monosyllabic element clearly marked off from the rest of the verb complex. It is nearly always preceded by a number of originally independent modifying elements. In Athabaskan it undergoes internal phonetic and morphologic changes as it passes from one tense (present and past, definite and indefinite) to another. Such changes have not been indicated by Swanton for either Haida or Tlingit. Dr Boas, however, on the basis of material recently secured from a Chilcat Indian, informs me that internal stem changes for tense, analogous to those found in Athabaskan, are characteristic also of Tlingit.

6. A series of temporal-modal elements is found suffixed to the verb stem. Some of these are firmly united with the verb stem (e. g., continuative -*l* in Hupa *tcⁱu-wⁱ-l-tʻϵ-l* "he was bringing;"

usitative -*tc* in Tlingit *u-qʻox-tc* "he kept coming in;" perfective
-*y*- in Haida *suʻ-da-y-aganι* "had said"), others are more in the
nature of enclitic particles (e. g., emphatic -*hε* in Hupa *doʻ a-du-
wιn-nε-hε* "don't say that!" imperative -*dε* in Tlingit *na-at-dε*
"(for firewood) go!" Haida hortatory -*djaη* in *ł gιη-gat-djaη* "let
me adorn [you]!").

7. Still more loosely suffixed, in most cases, to the verb form is
a series of syntactic particles, largely used to subordinate it in
various ways. In part these elements, as we shall see, àre post-
positions in origin.

8. While compounding of verb stems is most luxuriantly de-
veloped in Haida, indications are not lacking of the presence of
the process also in Tlingit and Athabaskan. Thus, the Tlingit verb
stem *cι* "to desire" may be prefixed to another verb stem to form
its desiderative (e. g., *cι-tʻan* "to desire to pick berries"); cf. such
Haida compounds as *giʻda-yuʻan-sιη-ga* "to wish to give much food,"
in which the auxiliary verb stem -*sιη* "to wish," however, is suffixed
to the main stem. Nearer the Haida type is the class of Athabaskan
verbs in *-*ts/e* (cf. independent verb stem *-*ts/e* "to hear"), indicat-
ing that the action of the main verb is heard or otherwise perceived
(e. g., Hupa -*tʻuW-ts/ε* "to hear one splitting logs," Chipewyan
-*ni-θʼε* "to hear one say"). Differing morphologically from, yet
psychologically similar to, the Haida type of verb composition is
the use in Tlingit and Athabaskan of two independent verb forms
to form a logical unit; e. g., Tl. *gaχ gaχ-γiʻ-sa-tʻi* "cry you-will-be,"
i. e., "you will cry" (cf. such Haida compounds as *tʻaʻ-ga* "to
eat-be," i. e., "to eat"), and Hupa *tcłι[n]-nι-η-ya wι-n-tłε* "he-came
he-was-(thus)," i. e., "he always came."

9. A highly important feature found in all Na-dene languages is
the use of subjective or objective pronominal elements, according
to the nature of the verb, to indicate its logical subject. This
feature will be referred to again in connexion with the pronouns.

More impòrtant than any of the specific features we have named
is the similar manner in which the various elements going to make
up a verb-complex are linked together. The resulting structure
may be termed a sentence in miniature, not only psychologically,
but, as is much less often the case in America, also morphologically.

Noun Structure.—There are a large number of monosyllabic noun stems, which may be used absolutely, in all three Na-dene languages. These are both of type cv and cvc.

They often enter into composition, the qualifying noun regularly preceding (e. g., Chipewyan *tɬ!o-bɛc* "grass-knife, mowing machine;" Tl. *ᴟaˑt-s/aˑxᵘ* "root-hat"). In Haida, however, simple composition of noun stems does not seem to be often found (in such compounds as Masset *iˑtɬ!adas ˑai* "chief's blood," possessive *-ι* or *-α* seems to have contracted with the final vowel of the second noun). Another type of composition which is particularly characteristic of Na-dene is the suffixing of a possessive element (Ath. *-e*, *-ye*, *-γe*; Tl. *-ι*, *-γι*, *-u*, *-wu*; H. *-ga*, *-ι*, *-α*) to the second member of the compound; this element indicates that the second noun governs the first, in other words that the first is genitively related to it (e. g., Chipewyan *kˑa-tˤuwɛ* "goose-lake;" Tl. *s/atc aˑn-ι* "moss town;" H. *xoˑya tɬuˑ-ga* "raven's canoe, beans"). It is important to observe that finite verb forms may be nominalized or turned into relative clauses in Athabaskan and Tlingit by the suffixing of this possessive (better relative) element (its different forms in Athabaskan and Tlingit are due to phonetic factors); cf. Montagnais *tθ/ai gay-e* "plate which-is-white" with Tl. *at-ciˑ-γι* "those who can sing."

Possessive pronouns are prefixed to nouns; they are identical in form with the objective forms used with verbs. Most nouns but terms of relationship and, generally speaking, those indicating parts of the body are in Athabaskan followed by the relative particle discussed above (e. g., Chipewyan *bɛ-θiˑ* "his head" but *bɛ-'ay-ɛ* "his snowshoes"). Similarly in Tlingit the relative suffix is regularly used with a possessive prefix except in the case of terms of relationship and, though not consistently, body part nouns (e. g., Tl. *du-tɬa* "his mother" but *du-tcˤuˑn-ι* "his dream"). Haida possessive constructions are on the whole analogous to those of the other two Na-dene languages, the relative suffixes *-ga* and *-ι*, *-α* being used in some cases, omitted in others (e. g., *l djaˑ-ga* "his wife," Masset *l tɬaˑl* "her husband," Masset *l k/uˑg-i* "its heart").

Derivative affixes (aside from nominalized verb forms) are quite sparingly used in Na-dene. A diminutive suffix is found in both

Athabaskan and Tlingit (e. g., Hupa *djɛlo·-tc* "small storage-basket," Tl. *a·-k!ᵘ* "little lake"). Noun plurals (aside from Tl. collective *-q!*) are not often formed, though special plural forms for terms denoting human beings are found here and there (e. g., Kato *sk'i·-k'* "boys," Tl. *du-k'a·ni-γɛn* "his brothers-in-law," H. *k!wai-ga-laη* "elder brothers").

Pronouns.—There are two classes of pronouns in Na-dene. Subjective pronouns are used as the subjects of active verbs (in Athabaskan of most verbs generally); objective pronouns as the objects of transitive verbs, subjects of neuter verbs (which may best be interpreted as objects of impersonal verbs), and possessive prefixes with nouns. While the two series are distinct as such, not all the respective forms are etymologically unrelated; in Tlingit there are one or two minor differences between the objective and possessive series. In both Athabaskan and Tlingit, as we have seen, the subjective and objective pronominal elements are integral parts of the verb complex, the possessive elements of the noun complex; in Haida the pronominal elements may be considered as independent words or, at least in part, as proclitic elements. A third series of pronouns is found in Athabaskan and Tlingit; these are independent denominative terms, which, however, have no influence on the form of the verb or noun.

The employment of objective pronouns with verbs denoting states has been rather obscured in Athabaskan by the spread of subjective forms, but there are enough cases to make it clear that the impersonal verbs with objective pronominal elements characteristic of Haida and Tlingit were at one time better represented also in Athabaskan.

The contrast between verb forms with subjective and objective pronominal subject is exemplified, e. g., by Tl. *gu-x̣-t'u-si·t* "we will cook it" (with subjective pronominal element *t'u-* "we") and *ha-kᵘ-gu-wa-t!a* "we will be warm" (with objective pronominal element *ha-* "us": "it will be warm to us"); by H. *ł q'a-t!al-gan* "I got off" (with subjective pronominal element *ł* "I") and *di· sk!ɪstł-djɪli·-ga* "I am truly full" (with objective pronominal element *di·* "me": "it is truly full to me"); and by Hupa *o-η-xai* "thou

art buying" (with subjective pronominal element -η- "thou")
and nɩ[k]-ḵ!-o-waη "go to sleep!" (with objective pronominal
element nɩ- "thee": "let it sleep to thee!"). That the verb forms
with objective pronominal subject are indeed impersonals with pro-
nominal object is made clear by comparing them with such transi-
tive forms as Tl. ha-u-sɩ-neˑx̣ "they have cured us;" H. diˑ dalaη
tł-gaxa-gɩl-ga "you tire me with your handling;" and Hupa ya[n]-
nɩ-ł-tʽɩη "he picks thee up." The possessive use of objective pro-
nominal elements is illustrated by Tl. haˑ-qʽahaˑgu "our eggs;"
H. diˑ giˑda "my daughter"; Hupa nɩ[t]-tʽai "thy paternal uncle."

Postpositions.—Very characteristic of Haida, Tlingit, and Atha-
baskan is a set of local and relational elements which regularly
follow the noun or pronoun that limits them (e. g., H. stʽal-ai stʽa
"the cliff from;" Tl. xaˑna-dε "evening-towards;" Hupa nɩn-tc!ɩη
"ground-toward"). These postpositions offer remarkable morpho-
logical and etymological analogies in the three languages. No less
than about thirty-five Athabaskan postpositions and local verb
prefixes (which, as we shall see, are in all probability postpositions
in origin) can be more or less confidently stated to be cognate with
corresponding Haida, Tlingit, or Haida-Tlingit elements. Out of
twenty-five Hupa postpositions listed by Goddard, at least fifteen
seem to be related to similar elements in Tlingit, Haida, or both.
These facts show that the postpositional elements of Na-dene reach
back, aside from certain later dialectic developments, into the
earliest period of Na-dene linguistic history that it is impossible to
arrive at by comparative evidence.

In some cases it is possible to show that postpositions are
nouns in origin, the complex of noun + postposition forming
originally a compound noun. Thus, Hupa and Kato -lai, Chipewy-
an -layε "on top of" is simply the noun stem for "end, top" com-
pounded with the preceding element; Chipewyan -bǫ "around,"
the similarly employed stem for "edge" (Ath. *maη, *man). With
Tlingit t/a "behind," Haida t/ał "behind, back of," and Tl. kʽa
"on" compare respectively Chipewyan -t/a-zε "back" (body-part),
Kato -t/a "tail," and Navaho -kʽa "surface." Hence it is intelligible
that the same noun stem may in some cases have developed inde-

pendently into distinct postpositions in different Na-dene languages; e. g., Ath. **man*, Tl. *wan* "edge" means "around" as Athabaskan postposition, "close to" as corresponding Tlingit element. The nominal origin of postpositions is further made very probable by the fact that they are frequently preceded by possessive pronouns: Hupa *mi-yε* "under it" (originally perhaps "its bottom") like *mι[n]-nιη* "its face;" Tl. *hasdu-q'a·nax* "after them" (originally perhaps "their following") like *hasdu-caγi·na-γι* "their anchor;" H. *di· ga* "to me" (originally perhaps "my vicinity") like *di· go·η-ga* "my father." Whether we shall ever be able actually to demonstrate the nominal origin of all Na-dene postpositions is doubtful, but there can be little doubt of the correctness of this view.

Postpositions often occur compounded among themselves. In some cases the analysis is evident (e. g., Chasta Costa -*mε·-q!ε* "inside of" < "therein-at;" Tl. -*k'α-q!* "on" < "on-at;" H. *gei-st'α* "out of" < "in-from"); in others the two (or more) elements have grown into a unit that can be analyzed only by comparative evidence (e. g., Tl. *t'a·γi* "under" contains Tl. *γi·* "down in," but *t'a·* does not occur alone; comparison with Tl. *t'a·-k* "in the middle of," *t'ι-n* "with," and particularly Ath. **-t'a* "among," shows *t'a·γi* to have originally meant "down among").

Postpositions combine with verb forms in two ways, as local or relational prefixes and as syntactic suffixes. We have already indicated that several of the local prefixes of Athabaskan are merely postpositions in origin that have become somewhat firmly attached to the verb complex. Thus, Hupa *xa-* in *xa-n-t'ε* "look for it!" is evidently etymologically identical with -*xa* in *no·-xa* "after us." In some cases the postposition comes after elements which can hardly be disconnected from the verb form, e. g., *a-ya-l-tc!ι[t]-* -*dεn-nε* "he told them" (here -*l* "with" appears immersed in the verb, which demands the indefinite objective *a-* "it" as constant prefix; morphologically parallel is Tl. *da-* "to" in verbs of saying, e. g., *ye da-γa-du-q'a* "thus to-him-spoke" like Ath. *a-l-*, which is doubtless identical in origin with postpositive -*dε* "to," Masset *da* "to," Ath. **-d*, **-dĕ*, ** dĕ-n* "to, at"). These facts are not surprising when we bear in mind that the indirect object, nominal or

pronominal, precedes the verb and is followed by its postposition
(e. g., Hupa *ǫo·-ǫa t'ε-η-'ɩn-t'ε* "him-for thou-wilt-look;" Tl. *a-da
a-o-łi-t'aq!* "it-around they-drifted;" H. *la-gei la sk'ɩt-nanaη-xida-
i-as* "it-into he began-to-chop-up"). It needs only the removal
of the object (which then remains understood) from the postposition
to bring the latter into closer touch with the verb. In the last
Hupa example the removal of the expressed object (*ǫo·-*) leads to a
form like the *ǫa-n-t'ε* first quoted. In Tlingit this use of the
postposition as verb prefix with unexpressed object does not seem
to be common, but examples abound in Haida, e. g., *gei la q'a·-tcl ɩ-
gan* "into he went-in." In the last example *gei* is morphologically,
as well as etymologically, parallel to Hupa verb prefix *yε-* "into"
(cf. Chipewyan postposition *-yε'* "in"). Here again we observe that
Haida has allowed distinct elements to coalesce to a less extent
than Athabaskan. In view of the tendency in Athabaskan for
postpositions to become specialized as verb prefixes, it is not sur-
prising if we find cases of such prefixes, no longer used as post-
positions, corresponding etymologically to Haida postpositive
elements. Such an example is Ath. **tsĕ-, *tsĕ-η-* "away from, out
of;" H. *st'a* "from, after" (for H. *st'*: Ath. *ts*, cf. also H. *st'a-*
classifier for ring-shaped objects: Navaho *tsa-bą·s* "ceremonial
hoop," *yo-s-tsa* "ring").

A verb form as such is sometimes conceived of as nominalized
and is followed by a postposition which serves to subordinate it.
Thus, in a Chipewyan form like *hi-l-tcl ε-t!a* "because he was angry,"
postpositive *-t!a* "with, on account of" (cf. *bε-t!a* "with it")
nominalizes and subordinates *hi-l-tcl ε* "he was angry" ("he-was-
angry because-of," "because of his being angry"). Such syntactical
developments have taken place independently in the Na-dene lan-
guages, to some extent even in the various Athabaskan dialects.
This is indicated, among other things, by the fact that even where
two Na-dene languages have employed the same postposition for
syntactic purposes, the use to which it is put is different (e. g., Ath.
*-de "if" and Tl. *-t* "in order to" both go back to Na-dene post-
positive **-da* "to, at"). Tl. *-γa* and *-n*, which make subordinate
clauses out of verb forms (e. g., *has a-ga-ca·-n* "when they marry;"

a-t'e·-x-γa "when she slept"), are doubtless identical with post-positive *-γa* "in the neighbourhood of" and *-n* "with, at."[1]   In Haida temporal clauses are formed by nominalizing verb forms by means of suffixed demonstrative (*g*)*ai* "the," these being then followed by postpositive *dlu·*. Subordinate clauses formed by means of postpositions without preceding (*g*)*ai* also occur (e. g., Masset *l k!ota·l-an sil-e-t* "after he died," literally "he died place-the-to"). The degree of coalescence of postposition and verb is again much less in Haida than in Tlingit and Athabaskan.

Summary.—It has become evident that the morphologies of Haida, Tlingit, and Athabaskan present numerous and significant points of comparison. Despite not unimportant differences of detail, the same fundamental characteristics are illustrated in all three.   In not a few cases elements (or even processes) which are thoroughly alive in one of the languages linger on merely as survivals in another (e. g., *-xa*, freely used in Haida as distributive suffix with numerals, postpositions, and nouns, lingers on in Tlingit as compounded *-na-x* after numerals and as sporadic noun plural *-*k*', *-*k*'*e*, *-*k*'*ai* in Athabaskan).

Considerable specialization must, of course, be allowed for. Peculiar to Haida are the development of a large class of nominal classifiers, a great exuberance of composition of verb stems, the development of a set of local suffixes in the verb, and greater looseness in the treatment of pronominal elements and postpositions.   The synthetic tendency has gone farthest in Athabaskan, in which, e. g., pronominal subject and "modal" element often unite inextricably (there are, however, analogies to this in Tlingit). Tlingit, on the whole, seems to have the smallest number of purely distinctive morphologic features.   It shares with Athabaskan a lesser degree of independence of pronominal elements, a great development of verb prefixes denoting aspects and, it would seem, the employment of internal stem changes for tense differences. As in Haida, the distinction between active verbs with subjective pronouns and static verbs with objective pronouns is better preserved than in Athabaskan.

[1] My interpretation of Tl. *-t*, *-γa*, and *-n* as syntactically specialized postpositions differs from Swanton's, at least as far as expressed in his grammatical sketch.

II. COMPARATIVE VOCABULARY

The lexical evidence bearing on the genetic relationship of Athabaskan with Haida and Tlingit comprises, at the moment of writing, over three hundred distinct Athabaskan stems and grammatical elements which can be, with greater or less probability, assigned to the reconstructed Na-dene language.   Only a selection, comprising less than one third, of this lexical material is here presented.   The arrangement is alphabetical, from the point of view of Athabaskan.

ATHABASKAN	HAIDA	TLINGIT
1. *a-* demonstrative stem	*a-* dit.	*a-* dit.
2. *-ade* "elder sister"		*a·t* "father's sister, father's sister's daughter"
3. *-ca-η* obligatory future	*-sa-η* infallible future	
4. *-ca, -cal* "to catch with a hook"	*djɩl* "bait"	*cat* "to seize"
5. *-d, -dë* "at, to"	*-da* "to"	*-t, -dɛ* "to"
6. *da* "what?"		*da·* "what?"
7. *-da, -dal* "to go, to travel"	*-dal* "to move along"	
8. *-daη* "to drink"		*dana* "to drink"
9. *-das* "to burn"	*da·dj, (das)* "live coals"	
10. *-del* "several go"	*dal* "several go by land"	*at* "several go"
11. *del* "crane"	*di·lα* dit.	*du·l* dit.
12. *di* "this"	*dei* "just that way"	*de* "now"
13. *-dja* hortatory	*-dja-η* dit.	
14. *djaη* "mud"	*tcʻaʻn* dit.	
15. *-gaη* "to be mouldy"	*gu·na* "decayed"	
16. *-go* "toward"	*gua, gui* dit.	
17. *-gid, -yid* "to dive"	*gi·* dit.	
18. *-γa* "for," *-γan* "to"	*ga* "to," *gαn* "for"	*ga* "for"
19. *-γa* "to go"	*-ga* "to go in order to"	*-γa* "to go to"
20. *-γe, χe* "grease"		*eʻχ* "grease"
21. *-γed* "to run"	*gaʻt* dit.	
22. *-γel* "to be dark, night passes"	*gaʻl* "night"	*get* "to get dark"

ATHABASKAN	HAIDA	TLINGIT
23. -γe, -γel "to kill, to fight"	gail "to fight"	
24. -γwo "tooth"		ux "tooth"
25. hai "that"	hao "that"	he "this"
26. he-, xe- "they"		has "they"
27. xo-, hĕ- "he, him"		hu "he"
28. -k'a "liquid has position"	xao "liquid"	
29. -k'an, -k'a "to fish with a net"	xao "to fish"	
30. -k'a "on"		-k'a "on"
31. -k'e personal noun plural	-xa distributive suffix	-na-x distributive numeral suffix
32. k'ene "friend"		xo'n "friend"
33. kla "arrow"	qla· "harpoon"	qla "point"
34. klĕη "withes"	qlαn "grass"	
35. -klan "to burn"		qla·n "fire"
36. -kle "on"		-ql "at"
37. -ḵ'os, ḵ'es "to tie"	ḵ'u "to tie"	
38. -ł "with"	al "with"	
39. ł-, la negative		l negative
40. ła "one"	tla·- "the first"	tłe·- "one"
41. -ła "to jump"	tla· "to dive"	
42. -ład "end"	tlan "end"	
43. ło', lok' "fish"		tłlu·kl "cohoes"
44. -tłla "butt; behind"	-dlga "after"	
45. mĕ- "he, it"	wa- "that"	we "that"
46. man "edge"		wan "edge"
47. mĕs "cheek"		wac "cheek"
48. -n, -η local postposition	-n, -η general postposition	-n "with," also local postposition
49. -na "to die"		na "to die"
50. -nan "to drink"	nial, ni·l dit.	
51. -ne, -n "person, people"	na "to live; house"	na "people"
52. -nĕg, -lĕg "to relate"		nιk "to tell"
53. -ne "to play"	naη dit.	
54. -ni "to touch, to do with one's hands"		ni "to put"
55. no "place of retreat, island"		nu "fort"
56. -onaγ(e) "older brother"		hunx "man's older brother"
57. s- durative verb prefix		s- modal prefix

ATHABASKAN	HAIDA	TLINGIT
58. -sĕn "to hide"		sιn "to hide"
59. sil "steam," -sil "to steam"	sil "to steam"	si·t "to cook"
60. -t'a "among"	t'a-oan "alongside of"	-t'a·-kᵘ "in the middle of"
61. t'a "wave" t'a- verb prefix referring to water	t'a·ɳa "sea-water"	
62. -t'an "to eat"	t'a dit.	t'a·q! "to chew"
63. -t'e "to look for," -t'an "to look"		t'iln "to see"
64. -t'e "to be cold," t'ĕn "ice"	t'at "cold"	t'a·dj "cold"
65. -t'e "to lie"	t'ai, t'i "to lie"	t'ai "to lie," t'a "to sleep"
66. t'ez "night"		t'a·t "night"
67. -tla "because of"	-tla dit.	
68. tla "feather," -tla "to fly"	tlagun "feather," tlao- "feather-like object"	tla-wu "feather"
69. -tla "tail," tla-ɳ "backwards"	-tłał "back of "	-tla "behind"
70. -tles "to step"	tła "to step"	
71. -tlo "to shoot"		tłuk "to shoot"
72. -tlod "to rub"		tłus "to rub"
73. tsa "ring-like object"	st'a- "ring-shaped object"	
74. tslai "dish"	sqłao "to put in a dish"	słιq! "dish"
75. -tslĕn "bone"		sła·q "bone"
76. tsli "again"		ts!u "again"
77. -tc'i "grandfather"	tc'ιn dit.	
78. -tc'oɳ "mother-in-law"	djo·n dit.	tc'a·n dit.
79. tcla "hat"		sja·xᵘ "hat"
80. tclo "fir, spruce"	tcju "cedar"	
81. -χa "for"		-χα-n "to"
82. χa- "up, out of"	k'wa-gi "above"	k'e "upward"
83. χa' "goose"	χaha "mallard"	
84. χa-ɳ "quickly"	xao- "to do a thing quickly"	
85. -χan, -yan "to grow up," χan "old age"		can "old person"
86. χin "song"		ci· "song"
87. -ya "to stand" (plur.)	ga "to stand"	
88. -yan "to eat"		ya·n "to eat"

ATHABASKAN	HAIDA	TLINGIT
89. *ye-* "that," *y-* "he"	*gai* "this, that, the"	*ya* "this"
90. *-ye* "at the foot of, under"		*-γi·* "down in"
91. *-yĕ* personal noun plural		*-γɛ-n* plural of terms of relationship
92. *ye* "supernatural being," *-yĕn* "to practice shamanism"		*γe·k* "supernatural helper"
93. *-ye* "in"	*-gei* "into"	*-ge·* "inside of," *-γι-k* "inside"
94. *-ye* suffix making relative clause		*-γι* suffix making relative clause
95. *yo* "that yonder"	*gu* "there"	*yu* "that yonder"
96. *-'a* "to go"	*q'a* "to walk"	
97. *-'a* "to tell, to sing"		*q'a* "to say"
98. *-'in* "to see, to look"	*q'ιη* dit.	*gɛn* dit.

III. PHONOLOGY

The phonetic systems of Athabaskan, Haida, and Tlingit, despite a good many differences of detail, present important points of similarity. Three types of stops are found in each: intermediate (or sonant), aspirated surd, and glottalized (fortis). Sibilants and sibilant affricatives, k-spirants, and laterals are well developed. A remarkable phonetic feature held in common by the three Na-dene languages is the paucity of labials; *b*, *p'*, and *p!* were clearly not found in Na-dene (*b* and *p'* are rare Haida sounds), *m* existed only doubtfully (Ath. *m*, whence *b* in certain dialects, is not equivalent to Haida *m*, but to Haida-Tlingit *w*), while *w* was certainly found. Athabaskan has lost the old velar series of stops as such, while Haida and Tlingit have preserved them; on the other hand, the Na-dene anterior palatals, best preserved in Haida, have been lost as such in Tlingit.

In the more elaborate paper on the Na-dene languages in course of preparation, the historical relationship of the Athabaskan sounds to their Na-dene prototypes and Haida and Tlingit correspondents is systematically worked out on the basis of all the evidence available. Here it will suffice to point out some of the more important correspondences, referring to the numbered entries of the comparative vocabulary for illustrative examples.

Stopped Consonants

1. Ath. *d*: H. *d, -t*: Tl. *d, -t* (nos. 2, 5, 6, 7, 8, 9, 10, 11, 12, 21)
2. Ath. *t'*: H. *t'*: Tl. *t'* (nos. 60, 61, 62, 63, 64, 65, 66)
3. Ath. *tl*: H. *tl*: Tl. *tl* (nos. 67, 68, 69, 70, 71, 72)
4. Ath. *g*: H. *g, -k* (nos. 15, 16, 52)
5. Ath. *k'*: Tl. *k'* (no. 30)
6. Ath. *k'*: H. *x*: Tl. *x* (nos. 28, 29, 31, 32)
7. Ath. *x*: H. *k'(w)*: Tl. *k'* (no. 82)
8. Ath. *ḵ'*: H. *ḵ'* (no. 37)
9. Ath. *y,(g)*: H. *g* (nos. 17, 87)
10. Ath. *kl*: H. *ql*: Tl. *ql* (nos. 33, 34, 35, 36)
11. Ath. *'*: H. *q'*: Tl. *q'* (nos. 96, 97, 98)
12. Ath. *γ*: H. *g*: Tl. *g* (nos. 18, 21, 22, 23)
13. Ath. *y*: H. *g*: Tl. *g, γ* (no. 93)

Continuants

14. Ath. *m*: H. *w*: Tl. *w* (nos. 45, 46, 47)
15. Ath. *n, -η*: H. *n, -η*: Tl. *n* (nos. 3, 8, 14, 15, 32, 34, 35, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 58, 63, 78, 85, 88, 98)
16. Ath. *l, ł*: H. *l, ł*: Tl. *l* (nos. 4, 7, 10, 11, 22, 23, 38, 39, 59)
17. Ath. *s*: H. *s, dj*: Tl. *s* (nos. 9, 57, 58, 59)
18. Ath. *c (s)*: H. *s, dj*: Tl. *c* (nos. 3, 4, 47)
19. Ath. *x(> c* in most dialects): Tl. *c* (nos. 85, 86)
20. Ath. *y*: H. *g*: Tl. *y* (nos. 88, 89, 95)
21. Ath. *y* (before front vowel): H. *g (g)*: Tl. *γ* (nos. 90, 91, 92, 93, 94)
22. Ath. *x*: H. *x, x*: Tl. *x* (nos. 20, 81, 83, 84)
23. Ath. *h, x*: H. *h*: Tl. *h* (nos. 25, 26, 27)
24. Ath. *γ*: H. *g*: Tl. *γ, -x* (nos. 19, 20, 24, 56)

Affricatives

25. Ath. *ł*: H. *tl*: Tl. *tl* (nos. 40, 41, 42, 43)
26. Ath. *dj*: H. *dj, tc'* (nos. 13, 14)
27. Ath. *tc'*: H. *tc', dj*: Tl. *tc'* (nos. 77, 78)
28. Ath. *tcl*: H. *tcl*: Tl. *sl* (nos. 79, 80)
29. Ath. *tsl*: Tl. *tsl, sl* (nos. 75, 76)
30. Ath. *tsl*: H. *tłl*: Tl. *tłl* (e. g., Ath. **-tsle* "penis": Tl. *tłle'ł* dit.; Ath. **-tsłi* "to sit [plur. subj.]": H. *tłła-(o-)* dit.)

Consonant Clusters.—The study of Na-dene sibilants and sibilant affricatives is rather involved and presents several difficulties. The summary given above (17, 18, 19, 26, 27, 28, 29, 30) exhibits some of the main developments. An important group of cases is afforded by Haida stems or elements beginning with consonant clusters whose first element is a lateral (*ł, tł!, dl*) or a sibilant (*s*). Swanton, in

commenting on these clusters, surmised that they were perhaps due to the prefixing of an old morphological element (e. g., *l-*, *s-*). There is, however, no evidence whatever to support this. On the other hand, I have at my disposal upwards of twenty such examples which point clearly to the inference that these Haida clusters were found in Na-dene and correspond to lateral and sibilant affricatives in Athabaskan and Tlingit. The following relations can be established:

A. 31. H. *lg-*: Ath. *tl!-*　(?)
　　32. H. *lqʻ-*: Ath. *tl!-*
　　33. H. *dlg-*: Ath. *tl!-* (no. 44)
　　34. H. *ltʻ-*: Ath. *tc!-*
　　35. H. *tilx-*: Ath. *tc!-*　(?)
　　36. H. *tild-*: Ath. *tsl-* (cf. 30.)
B. 37. H. *sg-*: Ath. *ts-*　(?)
　　38. H. *sq!-*: Ath. *tsl-*: Tl. *sl-* (no. 74)
　　39. H. *sg-*, (*skʻw-*): Ath. *tcʻ-*: Tl. *tcʻ-*
　　40. H. *sq!w-*: Ath. *tc!-*
　　41. H. *stʻ-*: Ath. *ts-* (*tsl-*): Tl. *tʻ-*
　　42. H. *stʻ-*: Ath. *tcʻ-*
　　43. H. *stl-*: Ath. *tc!-*

Vowels.—The great majority of vowel correspondences is perfectly intelligible; a certain number of unsolved problems still remain. In comparing Tlingit with Haida and Athabaskan forms, it is necessary to bear in mind that, under as yet undetermined circumstances, Tlingit *a* has developed to *e* (e. g., Tl. *xa* "to eat": *a-xeˑ-x* "he ate"; Tl. *deˑx* "two": *daxa-ducu* "two plus five, seven"; Tl. *tʻa* "stone": *tʻe-q!* "stones"). A more important problem is presented by Ath. *e* (doubtless open in quality), which is not to be directly compared with Tl. *e*. It is clear, both from internal Athabaskan evidence (e. g., Ath. *-tʻe* and *-tʻa* "to look for"; Ath. *tʻeʻ-* "in the water," *tʻa-* "water") and, still more, from comparison with Haida and Tlingit, that Ath. *e* (which must be assumed for the earliest Athabaskan period) has developed from Na-dene *a*; less frequently Ath. *e* goes back to Na-dene *i*. Under what phonetic circumstances, however, Na-dene *a* has remained as such in Athabaskan or become *e* is not clear for the present. This I believe to be one of the most important problems of Na-dene phonology.

Some of the more important vocalic correspondences are:

44. Ath. *a*: H. *a*, *a·*: Tl. *a*, *a·*, *α*, (*e*) (nos. 1, 2, 3, 4, 6, 7, 8, 9, 13, 14, 18, 19, 25, 28, 29, 30, 33, 35, 40, 41, 42, 44, 46, 49, 60, 61, 62, 67, 68, 69, 73, 74, 79, 81, 82, 83, 84, 85, 87, 88, 96, 97)

45. Ath. *e* (sometimes reduced to *ĕ*[1]): H. *a*, *a·*, *α*: Tl. *a*, *a·*, *α*, (*e*) (nos. 5, 10, 20, 21, 22, 26, 31, 34, 45, 47, 51, 53, 64, 65, 66, 70, 75, 89, 92)

46. Ath. *i*: H. *i*, *i·*, *ι*, *ei*: Tl. *i·*, , *e* *ε* (nos. 12, 17, 54, 59, 77, 86, 98)

47. Ath. *o*: H. *u*, *o·*: Tl. *u*, *u·* (nos. 16, 24, 27, 37, 43, 55, 56, 71, 72, 78, 80, 95)

Whether or not Na-dene possessed pitch accent must remain undecided for the present. Its presence in Tlingit and a few remarks by Morice and Legoff as to its possible existence in Athabaskan make this not improbable. Should this prove to be the case, some of the phonological difficulties in Athabaskan and Tlingit vocalism may be solved (e. g., Ath. *e* < Na-dene *à*, Ath. *a* < Na-dene *á*). All this, however, is quite vague as yet.

IV. Conclusion

The main conclusion to be derived from the selected morphological, lexical, and phonological evidence that we have passed in review is, I believe, obvious. Athabaskan, Haida, and Tlingit must be considered genetically related. The correspondences are of so intimate a character that mutual borrowing of words and morphological features seems out of the question. It is, however, no less obvious that each of these languages is very distinctive and represents a highly differentiated form of the Na-dene prototype. In no sense can Haida, Tlingit, and Athabaskan be said to form a continuum comparable to that of the Athabaskan dialects when these are compared among themselves. Each Na-dene language has evidently passed through a very long period of development in linguistic isolation from its sister languages. It would be rash, in the present state of our knowledge, to dogmatize on the relative conservatism of the Na-dene languages. I would venture to suggest, however, that Haida has remained the most faithful to the original sound system of Na-dene, but that, on the whole, the original morphological features are best preserved in Tlingit.

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[1] This weak vowel is differently colored in different dialects; e. g., Hupa *ι* (less frequently *α*), Carrier *α*, Navaho *i*.

Several facts suggest that Tlingit and Athabaskan may have had a common linguistic history after Haida had become differentiated, but too much should not be made of this.

The name that I have chosen for the stock, Na-dene, may be justified by reference to no. 51 of the comparative vocabulary. "Dene," in various dialectic forms, is a wide-spread Athabaskan term for "person, people"; the element *-ne* (*-n*, *-ŋ*) which forms part of it is an old stem for "person, people" which, as suffix or prefix, is frequently used in Athabaskan in that sense. It is cognate with H. *na* "to dwell; house" and Tl. *na* "people." The compound term "Na-dene" thus designates by means of native stems the speakers of the three languages concerned, besides continuing the use of the old term Dene for the Athabaskan branch of the stock.

An important ethnological consequence of our linguistic results is that a demonstration is at last given of the northern provenience of the Athabaskan-speaking peoples. So long as Athabaskan was counted a separate linguistic stock, there was no conclusive à priori reason for considering its Pacific and Southern branches as having spread out from the northern group. Under the present circumstances a southern drift of Athabaskan-speaking tribes cannot seriously be doubted. The center of gravity of the Na-dene languages is clearly in the northwest, in southern Alaska and adjacent parts of northern British Columbia and southern Yukon Territory. Owing to the great linguistic gulf separating Haida and Tlingit, I should be inclined to consider the coast of southern Alaska, the present home of the Tlingit Indians, as the most likely region in which the Na-dene languages developed. The Athabaskan branch of the stock undoubtedly formed a relatively undifferentiated unit long after Haida and Tlingit had become differentiated from each other. The Athabaskan dialects have so many distinctive traits in common that it is perfectly evident they have had a long history in common. They may be considered a specialized interior offshoot, just as Haida is a specialized island offshoot.

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